Maryland Artist/Teacher Institute

Arts Integrated Lesson Plan

ART FORM:
Visual Art

SUBJECT AREA:
Mathematics

Lesson Title: **Math-terpieces**	Grade: 1
Contributor, School: N/A	Time Frame: Two 45-minute sessions

State Curriculum Content Standards, Indicators, Objectives

Visual Art Content Standard(s)	**Math Content Standard(s)**
1.0 Perceiving and Responding: Aesthetic Education Students will demonstrate the ability to perceive, interpret, and respond to ideas, experiences, and the environment through visual art. 3.0 Creative Expression and Production Students will demonstrate the ability to organize knowledge and ideas for expression in the production of art.	7.0 Processes of Mathematics Students demonstrate the processes of mathematics by making connections and applying reasoning to solve problems and to communicate their findings.
Visual Art Content Indicator(s)	**Math Content Indicator(s)**
1.1 Identify, describe, and interpret observed form. 3.1 Create images and forms from observation, memory, imagination, and feelings.	Topic A: Problem Solving 7.A.1 Apply a variety of concepts, processes, and skills to solve problems. Topic C: Communication 7.C.1 Present mathematical ideas using words, symbols, visual displays, or technology. Topic D: Connections 7.D.1 Relate or apply mathematics within the discipline to other disciplines and to life.
Visual Art Content Objective(s)	**Math Content Objective(s)**
1.1.b Represent observed physical qualities of people, animals, and objects in the environment using color, line, shape, texture, and form. 3.1.b Manipulate art media, materials, and tools safely. 3.1.c Create artworks that explore the uses of color, line, shape, texture, form, and selected principles of design, such as pattern and repetition, to express ideas, thoughts, and feelings.	7.A.1.d Apply a strategy, i.e., draw a picture, guess and check, find a pattern, write an equation. 7.C.1.c Explain mathematically ideas in written form. 7.C.1.e Express solutions using pictorial, tabular, graphical, or algebraic methods. 7.D.1.c Identify mathematical concepts in relationship to life.

Objective(s) (Connecting the content areas)
Using the book *Math-terpieces* as an inspiration, students will create illustrated word problems.

Students will become more aware of mathematical computations that occur naturally in everyday life. These computations are often stimulated by what we see when we notice that something is missing or that something has been added. For example, you know someone ate your cookie because you have counted and subtracted. With this growing awareness, students will forge ahead to mathematically describe and illustrate what they experience in everyday life.

Key Arts Vocabulary	**Key Math Vocabulary**
line, texture, shape, color	*difference, left, subtraction, addition, total, sum, more than, plus*

Prior Knowledge Students Need for This Lesson

Arts	**Math**
• Students will have had experience with observing art work and identifying elements of art.	• Students need to know how to count objects. • Students need to know how to write words and numbers. • Students need to know basic math operations. • Student need to know basic computer operations, including art tools, cutting, and pasting.

Materials and Resources

Materials and Resources for the Class	**Materials and Resources for the Teacher**
• Postcards • Computers/Printer and Pixie or other student art software	• *Math-terpieces* • Art prints or screen images of masterpieces • LCD or TV • Computer with Pixie or other children's art program

Lesson Development/Procedures (including motivation, modeling, guided practice, and independent practice)

Day One

- Read aloud *Math-terpieces.*
- Discuss how the author selected objects from famous art images to create a story problem.
- Using art terminology, discuss how the artist rendered the image.
- Discuss and solve the math story problem.
- The class looks at other art prints which students use to create additional math story problems.

Day Two

- Students are paired off to work together.
- Each pair of students receives a postcard that depicts an art print.
- Each pair of students writes a story problem in question form that pertains to an object selected from the postcard.
- Using Pixie software, students work in the computer lab to compose and illustrate their story problems.
- Students use cut and paste commands to duplicate the illustrated objects to suit the story problem.
- If computers are not available, students should use handwriting and art materials to create a story problem from the postcard image.

Closure/Summary

- Several student pairs will group together to share and solve their math problems.
- Students will discuss the language in the word problems that leads them to particular mathematical

operations.
- Students will discuss the visual clues that lead them to the correct mathematical operations (i.e., addition or subtraction).

Assessment (Description/Tools)

Presentations are observed by the criteria of visual depiction, clarity of story problem, and mathematical solution.

Rubric

Score 3**:** Constructed math problem and illustration describe a complete and compatible understanding of a particular mathematical operation. Story problem concludes with a question. For example: How many altogether? What is the difference? How many more than? How many less than? etc. Answer is correct.

Score 2: Constructed word problem and illustration demonstrate partial understanding of mathematical operation. Question is omitted.

Score 1: Demonstrates little understanding of the construction of a math problem. Words are not compatible with the illustration.

Lesson Extensions

- For homework: Students are invited to describe three mathematical experiences that have occurred in the course of their everyday lives.
- Following day: Using the homework assignment, students create additional mathematical word problems and illustrations.
- The math center is set up to include copies of student-created and illustrated story problems.